FlyBy Math™ Alignment
Performance Standards
Mathematics

ALGEBRA
Students will use linear algebra to represent, analyze and solve problems. They will use equations, tables, and graphs to investigate linear relations and functions, paying particular attention to slope as a rate of change.

M8A1. Students will use algebra to represent, analyze, and solve problems.

Performance Standards	***FlyBy Math*™ Activities**
a. Represent a given situation using algebraic expressions or equations in one variable.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
d. Interpret solutions in problem contexts.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

M8A3. Students will understand relations and linear functions.

Performance Standards	***FlyBy Math*™ Activities**
d. Recognize functions in a variety of representations and a variety of contexts.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
g. Interpret the constant difference in an arithmetic sequence as the slope of the associated linear function.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system. --Interpret the slope of a line in the context of a distance-rate-time problem.
i. Translate among verbal, tabular, graphic, and algebraic representations of functions.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

M8A4. Students will graph and analyze graphs of linear equations.

Performance Standards	***FlyBy Math*™ Activities**
a. Interpret slope as a rate of change.	--Interpret the slope of a line in the context of a distance-rate-time problem.
b. Determine the meaning of the slope and y-intercept in a given situation.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system. --Interpret the slope of a line in the context of a distance-rate-time problem.

c. Graph equations of the form *y=mx+b.*	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.
e. Determine the equation of a line given a graph, numerical information that defines the line, or a context involving a linear relationship.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system. --Interpret the slope of a line in the context of a distance-rate-time problem.
f. Solve problems involving linear relationships.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.
M8A5. Students will understand systems of linear equations and use them to solve problems.	
Performance Standards b. Solve systems of equations graphically and algebraically, using technology as appropriate.	***FlyBy Math™* Activities** --Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system. --Use tables, graphs, and equations to solve aircraft conflict problems.
c. Interpret solutions in problem contexts.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.

DATA ANALYSIS AND PROBABILITY

Students will use and understand set theory and simple counting techniques; determine the theoretical probability of simple events; and make inferences from data, particularly data that can be modeled by linear functions.

M8D4. Students will organize, interpret, and make inferences from statistical data.	
Performance Standards a. Gather data that can be modeled with a linear function.	***FlyBy Math™* Activities** --Conduct simulation and measurement for several aircraft conflict problems.

PROCESS STANDARDS

The following process standards are essential to mastering each of the mathematics content standards. They emphasize critical dimensions of the mathematical proficiency that all students need.

M8P1. Students will solve problems (using appropriate technology).	
Performance Standards b. Solve problems that arise in mathematics and in other contexts.	***FlyBy Math™* Activities** --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

c. Apply and adapt a variety of appropriate strategies to solve problems.	--Use tables, graphs, and equations to solve aircraft conflict problems.
M8P3. Students will communicate mathematically.	
Performance Standards b. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	***FlyBy Math™* Activities** --Predict outcomes and explain results of mathematical models and experiments.
d. Use the language of mathematics to express mathematical ideas precisely.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Predict outcomes and explain results of mathematical models and experiments.
M8P4. Students will make connections among mathematical ideas and to other disciplines.	
Performance Standards c. Recognize and apply mathematics in contexts outside of mathematics.	***FlyBy Math™* Activities** --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
M8P5. Students will represent mathematics in multiple ways.	
Performance Standards a. Create and use representations to organize, record, and communicate mathematical ideas.	***FlyBy Math™* Activities** --Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
b. Select, apply, and translate among mathematical representations to solve problems.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
c. Use representations to model and interpret physical, social, and mathematical phenomena.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.